S
363.738
C10FP
V.2

rtilizer & Pesticide

Best Management Practices

1994-2

Pesticide Best Management Practices

The Integrated Approach to Preventing Water Impairment

MONTANA STATE LIBRARY
S 363.738 C10fp c.1 v.2
Fertilizer & pesticide best management p
3 0864 00091572 1

Pesticides have the potential to impair Montana's ground and surface water. However, that potential can be significantly reduced if pesticides are properly managed. This fact sheet outlines pesticide Best Management Practices (BMPs) that, if used, will help pesticide applicators prevent water pollution and other problems associated with pesticide use.

A pesticide should be used only after careful consideration. Has the pest been correctly identified? Is the value of the crop worth the amount you'll spend on pesticide control? Have you evaluated all other control options, including biological control? If your answer is yes to all three questions, only then should a pesticide application be considered.

Environmental Restrictions for Pesticide Use

Applying pesticides according to label directions will help prevent ground water impairment. Most pesticide labels indicate specific conditions in which the pesticide should and should not be applied. For example, some labels list soil pH and other soil texture restrictions. Labels also indicate appropriate application rates. Pesticides should be applied at the minimum rates needed to control the target pest. The old adage of "one is good, two is better" does not apply to pesticides!

Regardless of the label, pesticides should not be used in circumstances where there is a high likelihood that the product could leach into ground water. Pesticides, especially those that are moderately to highly soluble in water, should not be applied in areas of shallow ground water or coarse-textured soils. In these situations, alternatives to pesticides should be considered, even if they are more costly.

Also, State of Montana rules require the development of a written management plan restricting or controlling the use of certain pesticides in certain geographical areas when:

- ✓ The chemical is present in ground water at 50 percent of the Maximum Contaminant Level (MCL), a level set for that chemical by the EPA,
- ✓ There's a trend of the chemical's increased presence in ground water,
- ✓ The chemical has migrated in the ground water from the point of detection,
- ✓ The EPA proposes to suspend or cancel registration of an agricultural chemical, and/or,
- ✓ The chemical is suspected of having the potential to migrate to ground water.

Pesticide Applicator Training: A Necessity

The safe use of pesticides requires knowledge of not only where a pesticide may be safely used, but also the many precautions required for safe pesticide application. Education and training is necessary for anyone who applies pesticides. The Montana Department of Agriculture provides education, training and testing, and issuance of licenses for commercial and government pesticide applicators. Private applicators can receive education and training from the Montana State University Extension Service who are then issued a special permit by the Montana Department of Agriculture.

Best Management Practices

Often, you need to consider a variety of factors in pesticide management. Use of a single BMP will usually not be adequate; often more than one pesticide BMP should be applied to a given field and situation. Consider the following practices when using pesticides:

- ✓ Provide an optimum environment for a healthy crop. This can be done by selecting highly competitive and resistant crop varieties, using weed and disease-free seed, planting on the date that gives the crop the best chance to outcompete weeds and pests, and planting at the appropriate depth. Also, provide adequate nutrients for crop growth, maintain crop residue to provide nutrients and limit erosion, and renovate pasture and forages to provide adequate groundcover.
- ✓ Use crop rotation, trap crops, and mechanical, cultural and biological controls to reduce pest and disease problems and decrease pesticide use.

MONTANA
STATE
UNIVERSITY
1893•CENTENNIAL•1993
Extension Service

- ✓ Use soil conservation practices to decrease soil runoff that may carry pesticides off target. These practices include conservation tillage, contour farming, filter strips, field borders, cover crops and field windbreaks.
- ✓ Consider intercropping a legume with small grains to out compete weeds. A small grain interseeded with a slow starting perennial forage can also control weeds.
- ✓ Use integrated crop and pest management strategies which combine chemical control with other pest management practices.
- ✓ Establish and encourage natural predators and parasites whenever possible. Protect undisturbed areas to encourage populations of beneficial predators, parasitic insects and insect disease organisms.
- ✓ Scout fields regularly to identify the pest(s), pest location(s) and severity of infestation.
- ✓ Integrate soil characteristics and geology into pesticide management strategies.
- ✓ Select pesticides with the least potential for leaching or runoff.
- ✓ Consider spot applications of pesticides rather than whole field applications. Hand pull small infestations of weeds. Band apply pesticides over the crop row rather than the whole field to reduce the total amount applied.
- ✓ Reduce the quantity of pesticides used where appropriate. Use selective pesticides at the correct time to preserve natural controls.
- ✓ Read and follow pesticide label directions concerning proper application rate, timing and environmental hazards.
- ✓ Calibrate application equipment to deliver the correct amount of pesticide.
- ✓ Check equipment for leaks and malfunctions before, during and after application.
- ✓ Clear all field equipment of plant materials to avoid spreading weed seeds and diseases.
- ✓ Purchase, measure and mix only the quantity of pesticide that will be used in a single growing season.
- ✓ Use an anti-back siphoning device when mixing a pesticide. When filling a spray tank, the end of the fill hose should remain above the water level in the tank.
- ✓ Avoid mixing chemicals near springs or wells (both active and abandoned) by using a long hose, so that mixing occurs at least 100 feet *from* the water source. Never mix pesticides directly uphill from any water supply. Use surface diversion practices and erosion control measures for additional protection. Rotate the location of mixing and loading sites.
- ✓ Consider environmental sensitivity (soil type, hydrology and runoff) when selecting a location for storage and mixing and loading facilities.
- ✓ Triple rinse or power rinse empty containers. Pour the rinsate into the spray tank for use in treating a crop or site specified on the label.
- ✓ Properly dispose of pesticide containers and pesticides.
- ✓ Never drain excess pesticide or pesticide mixtures onto the soil or into sewers, drains, septic systems, ditches, streams, ponds or lakes.
- ✓ Store pesticides in a locked building on an impermeable surface away from water sources.
- ✓ Integrate irrigation events and weather into the pesticide application decision by delaying application if heavy or sustained rain or wind is forecast.
- ✓ Plan pesticide use carefully and evaluate all risks. Avoid a pesticide application when conditions are most likely to promote leaching or runoff.
- ✓ Follow requirements of specific farm management plans.
- ✓ Apply pesticides only if you have received training.

Heidi Hart, MSU Extension Assistant

Jeff Jacobsen, MSU Extension Soil Scientist

The programs of the Montana Extension Service are available to all people regardless of race, creed, color, sex or national origin.

Issued in furtherance of cooperative extension work in agriculture and home economics; acts of May 8 and June 30, 1914. In cooperation with the U.S. Department of Agriculture, Andrea Pagenkopf, Associate Vice Provost for Outreach and Director Extension Service, Montana State University, Bozeman, Montana 59717.

Funding provided by the Montana Agricultural Chemical Ground Water Protection Act and Fertilizer Checkoff. Additional information may be found in the General Agricultural Chemical Ground Water Management Plan (GMP).